AMENDMENTS TO THE DRAWINGS

The attached replacement sheets show changes in Figures 2, 3 and 4.

REMARKS

With entry of this Amendment, claims 1 and 3-26 are pending. Claims 2 and 27 are canceled without prejudice. No claims are added. The amendments to the claims are detailed below:

Claim 1 is amended to more clearly define the invention and to include the elements recited in original claim 2.

Claim 4 is amended to more clearly define the invention and be in independent form. Support for the amendments to claims 1 and 4 is found at least at page 6, lines 5-8.

Claims 3, 7 and 21 are amended to correct a dependency.

Claim 11 is amended to recite that the extrusion orifices are arranged in a plurality of rows in a direction transverse to the direction of the cooling gas stream and for clarity. Support is found at least at page 14, lines 1-4 and page 15, lines 3-4.

Claims 13, 22 and 24 are amended for clarity.

Claim 14 is amended for clarity and to correct a dependency.

Claim 16 is amended to correct a dependency and to recite that the number of orifices in the transverse direction is greater than in the cooling gas stream direction. Support is found at least in original claims 4 and 15 and at page 8, lines 11-15.

Claim 20 is amended for clarity and to correct a dependency. Support is found at least in original claim 8.

Claim 23 is amended to recite that the apparatus is adapted to extrude molding material having a zero shear velocity of at least 10000 at 85°C. Support is found at least at page 11, lines 17-19.

Claim 25 is amended for clarity and to recite that H is the distance of the upper edge of the cooling gas stream at the exit of the blowing means in the direction of passage of the continuously molded bodies to the plane of the extrusion orifices at the exit from the blowing means. Support is found at least at page 10, lines 13-19.

Claim 26 is amended to recite that the continuously molded bodies are extruded from extrusion orifices arranged in a plurality of rows in a direction transverse to the direction of the cooling gas stream and for clarity. Support is found at least in original claim 15, and at page 8, lines 11-15.

Applicants respectfully submit that the amendments to the claims do not introduce new matter.

Objections to the Drawings

The drawings were objected to for failure to comply with 37 CFR 1.84(p)(4) for using the reference character 11 to designate both a curtain and a bath surface, and for using the reference character 16 to designate both an axis and a direction. Applicants have amended the specification to delete "11" after curtain at page 13 and to replace "axis 16" with "direction 16" at page 14. A replacement drawing sheet is attached in which Figure 2 is amended such that reference 16 points to direction of the gas stream 15 in conformity with Figure 1.

The drawings were objected to for failure to comply with 37 CFR 1.84(p)(5) for failure to include the reference numeral 25 mentioned in the description. A replacement drawing sheet is attached in which Figure 4 is amended to show area 25, which according to the description is "positioned behind the largest diameter of the expansion zone." Page 18, lines 3-4.

Figure 3 was also objected to for showing the distance "A" to the first row of molded bodies. A replacement drawing sheet is attached in which Figure 3 is amended to show "distance A" extending from the blowing means 14 to the last row 22 of the molded bodies, according to the Examiner's suggestion.

Applicants respectfully submit that the amendments to the drawings do not introduce new matter.

Specification

The Examiner objected that the specification did not use the preferred layout set forth in 37 CFR 1.77(b). Applicants have amended the specification to provide section headings and text where appropriate. Support for the amendment inserting the brief description of the drawings is found at page 12, lines 9-16.

The title was objected to for including reference to a method. The title has been amended to reflect the claimed subject matter.

The Examiner objected to the specification for reciting "cooling area 16" at page 15 rather than "cooling area 19", for reciting "vertical" instead of "horizontal" at page 16, and for reciting "expansion zone 25" instead of "expansion zone 24" at page 18. The specification has been amended according to the Examiner's suggestions. The Examiner also objected that "direction" should be changed to "axis" at page 16. Applicants have amended page 14, line to

replace "axis 16" with "direction 16" with support for the amendment found at least at page 14, line 6; page 15, line 17; page 16, line 5; page 16, line 11; and Figures 1 and 2.

The Examiner objected that the amendment filed July 8, 2004 introduced new matter into the disclosure. Applicants respectfully submit that no new matter was introduced by the amendment dated July 8, 2004. Support for the amendment is found at the paragraph bridging from page 6 to page 7 of the PCT Application No. PCT/EP02/12592 filed November 11, 2002 of which the present application is a national phase application. The amendment conforms the text of that paragraph to a translation of the text from the international application.

The specification was objected to under 37 CFR 1.75(d)(1) for failing to provide antecedent basis for claims 7, 8 and 14. Applicants have amended the specification to insert a paragraph at page 15, to provide antecedent basis for these claims. Support for the amendment is found in original claims 7, 8 and 14.

Applicants respectfully submit that the amendments to the specification do not introduce new matter.

Claim Objections

Claim 23 is objected to under 37 C.F.R. 1.75(c) as being in improper dependent form. Claim 23 is amended to recite that the apparatus is adapted to extrude molding material having a zero shear viscosity of at least 10000 Pas, at 85°C. Applicants submit that amended claim 23 further limits claim 1, and respectfully request that the objection be withdrawn.

Claim Rejections Under 35 U.S.C. § 112

Claims 11, 14, 16, 20, 22 and 24-26 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. Applicants have amended each of these rejected claims either according to the Examiner's suggestions, or to otherwise render moot the rejections.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-26 stand variously rejected as being obvious under 35 U.S.C. § 103(a) over a combination of references. These rejections are respectfully traversed, as set forth below.

Claims 1 and 4

Claims 1-14 and 21-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over International Publication No. WO96/21758 to Courtaulds Fibres Holdings in view of U.S. Patent No. 6,117,379 to Haynes et al. ("Haynes").

Independent claims 1 and 4 each recite, among other things, an apparatus for producing continuously molded bodies comprising a multitude of extrusion orifices, a precipitation bath, an air gap between the extrusion orifices and the precipitation bath, and a blowing means for producing a cooling gas stream, the cooling gas stream being directed in the area of the air gap and exiting in a turbulent flow state from the blowing means.

The WO 96/21758 reference discloses a method of wet spinning a cellulose and tertiary amine oxide solution, using a precipitating bath. In contrast, Haynes discloses a hot melt spinning apparatus for "meltblowing processes, spunbonding processes and bonded carded web processes." (col. 2, lines 66-67). Applicants respectfully submit that it would not be obvious to modify WO 96/21758 based on the teachings of Haynes, or to combine the teachings of the two references, because the wet spinning process of WO 96/21758 is distinct from the melt spinning processes described in Haynes. One skilled in the art would have no reason to combine the reference teachings with a reasonable expectation of success because techniques useful in a melt spinning process would not necessarily be applicable in a wet spinning process.

Moreover, even assuming, *arguendo*, that the reference teachings could be combined, they still do not teach or suggest each element of amended claims 1 and 4. The WO 96/21758 reference, as the Examiner appears to acknowledge, does not teach or suggest the use of turbulence to cool the extruded fibers at all, let alone that the cooling gas stream exits in a turbulent flow state from the blowing means, as required by amended claims 1 and 4. Instead, the Examiner asserts that Haynes discloses "placing a bar arrangement at an exit to the blowing means …to increase the turbulence at the exit…." Office action, page 10, lines 14-16.

However, amended claims 1 and 4 each make clear that the cooling gas stream is already turbulent right at the exit from the blowing means, i.e., that the cooling gas stream exits in a turbulent flow state from the blowing means. In contrast, Haynes's cooling gas stream exits in a "substantially laminar flow…from a source toward the bars." (col. 5, lines 47-48). The cooling gas stream is transformed to a turbulent flow state only after passing a "turbulence-inducing bar arrangement" (col. 5, lines 14-15), i.e., long after exiting from the blowing means. Moreover, Haynes's cooling gas stream does not arrive at the bar arrangement in a turbulent state, rather

turbulence is generated by the bar arrangement. For example, Haynes discloses "the bar arrangement causes turbulence without requiring increased flow velocity, thereby minimizing disturbance or breakage of the filaments being quenched," (col. 2, lines 17-19) (emphasis added), and "[t]he sizing and spacing of bars 12 should be such that the quenching gas is converted to turbulent flow having a turbulence intensity greater than about 5%..." (col. 5, lines 41-43) (emphasis added). Thus the teachings of Haynes are limited to creating turbulence in a laminar cooling gas stream having low conventional velocity.

Moreover, the combination of WO 96/21758 and Haynes is also deficient for the following reasons. Claim 1 requires that "the cooling gas stream has a Reynolds number (Re) of at least 2,500." The Reynolds number of at least 2,500 indicates that the flow exiting from the blowing means according to claim 1 has specific properties. In particular, the Reynolds number relates to the flow state of fluid flow which is determined by the geometry of the exit, the flow velocity and the viscosity of the gas. WO 96/21758 and Haynes, taken separately or combined, fail to teach or suggest a cooling gas stream having a Reynolds number of at least 2,500.

Furthermore, neither reference teaches or suggests the velocity of the cooling gas stream required by claim 4. Rather, Haynes discloses "[t]he flow velocity of quenching gas or air from the supply zones 140-143 should be conventional. Generally, the flow velocity of supply gas should range from about 50-500 feet per minute..." (col. 7, lines 1-4). In contrast, claim 4 requires a flow velocity of 30 m/s, which is not a conventional flow velocity as used in Haynes, but is at least one order of magnitude greater.

Moreover, Haynes does not teach or suggest any measures that may be taken to provide a cooling gas stream exiting in a turbulent flow state from the blowing means at the claimed Reynolds number or velocity. Rather, Haynes teaches away from such measures because it is focused on cooling gas streams of conventional flow velocity and teaches that no increased flow velocity is required. For example, Haynes also indicates that "[t]he turbulence inducing bar arrangement operates to distribute the quench gas along the filaments as well as to cause turbulence. In order for turbulence to occur, the quench gas need only be supplied at a conventional flow rate and velocity. The bar arrangement causes turbulence without requiring increased flow velocity, thereby minimizing disturbance or breakage of the filaments being quenched." (col. 2, lines 13-19) (emphasis added).

The Examiner alleges that the Reynolds number and velocity "would have been found due to routine experimentation in finding optimum or operable characteristics of the cooling gas

flow relative to other process and apparatus parameters..." Office action, page 11, lines 2-8. However, a skilled artisan would not be motivated to routinely experiment with turbulent gas streams that exit in a turbulent flow state from the blowing means and have Reynolds numbers of at least 2500 according to claim 1, or velocities of at least 30 m/s according to claim 4. Applicants respectfully submit that while routine optimization may include some experimentation with the turbulence inducing bar arrangements, it would not include altering the working principal of the Haynes reference, or its requirement for a conventional flow velocity of 50-500 feet per minute.

Accordingly, claims 1 and 4 are each allowable.

Claims 3, 5-14 and 21-26

Claims 3, 5-14 and 21-26 each depend either directly or ultimately from allowable claims 1 or 4, and accordingly are allowable for at least the reasons set forth above.

Dependent claims 3, 5-14 and 21-26 may contain additional patentable subject matter for reasons not set forth herein.

Claims 15-20

Claims 15, 16 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 96/21758 in view of Haynes and further in view of U.S. Patent No. 5,639,484 to White et al.

Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 96/21758, in view of Haynes, and further in view of U.S. Patent No. 3,932,576 to Patel.

Claims 19 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 96/21758, in view of Haynes, and further in view of U.S. Patent No. 4,033,742 to Nichols et al.

Each of claims 15-20 depend either directly or ultimately from allowable claim 1. Each of the secondary references fail to cure the deficiencies of WO 96/21758 and Haynes set forth above, and accordingly, claims 15-20 are allowable for at least the reasons set forth above for claim 1. Dependent claims 15-20 may contain additional patentable subject matter for reasons not set forth herein.

Obviousness-Type Double Patenting

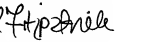
Claims 1-26 are provisionally rejected for obviousness-type double patenting over co-pending U.S. Application No. 10/500,998 in view of Haynes. The '998 application has now issued as U.S. Patent No. 7,364,681. Applicants respectfully traverse the rejection.

The '681 patent claims an apparatus for producing continuously molded bodies which are passed through a gas stream provided at a particular orientation. The Examiner concedes that the '681 patent does not claim a "cooling gas stream being turbulent at least at the exit from the blowing means," nor that the cooling gas stream has the Reynolds number or velocity required by amended claims 1 and 4 respectively. However, the Examiner alleges that it would have been obvious to modify the apparatus claimed in the '681 patent based on the teachings of Haynes. Haynes fails to cure the deficiencies of the claims of the '681 patent for the same and similar reasons that it fails to cure the deficiencies of WO 96/21758, as set forth above for claims 1 and 4. These arguments are incorporated by reference herein accordingly. Withdrawal of the obviousness-type double-patenting rejection is respectfully requested.

CONCLUSION

In light of the foregoing, Applicants respectfully request withdrawal of the rejections and allowance of the claims. Should any issues remain, the undersigned encourages the Examiner to contact the undersigned at the number below.

Respectfully submitted,



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